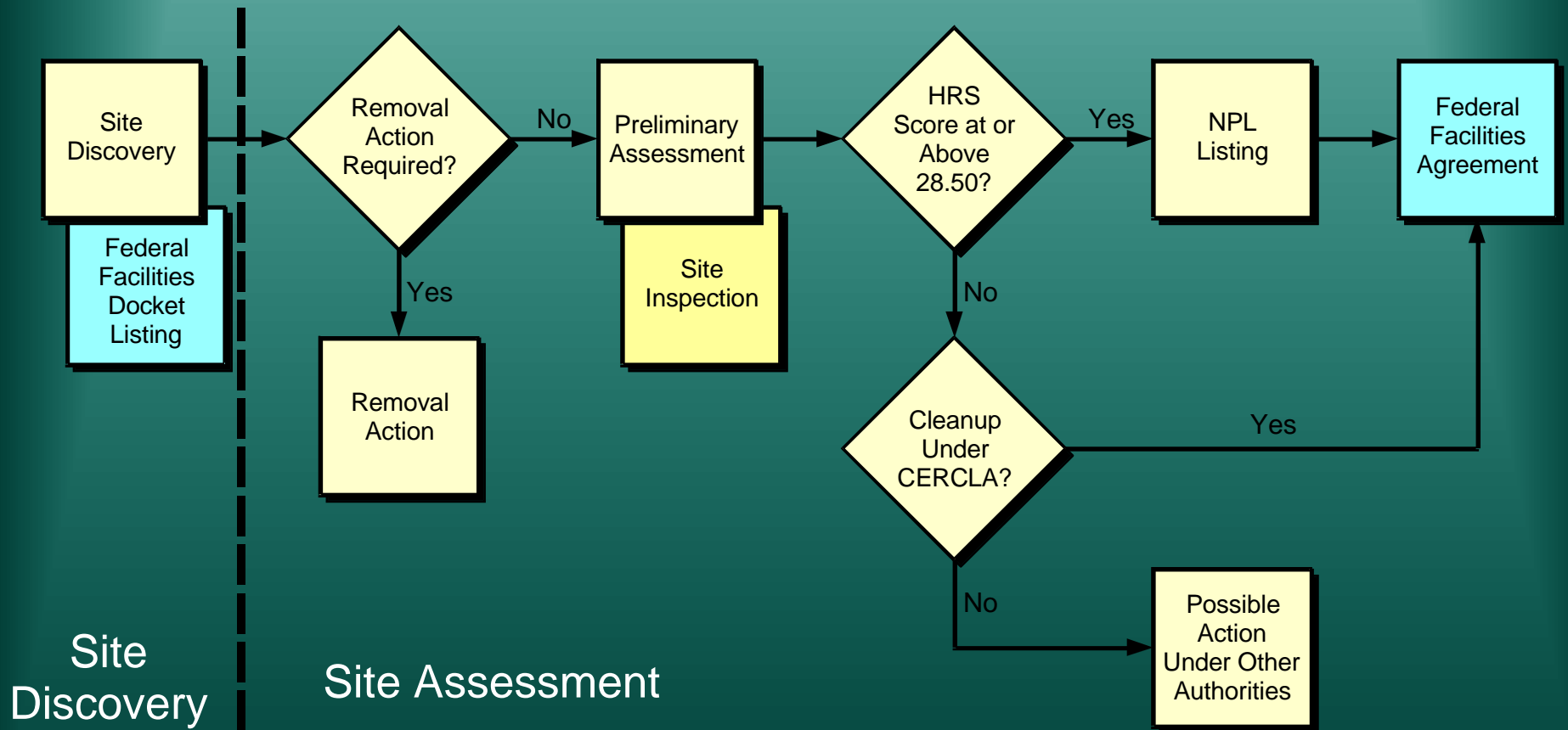
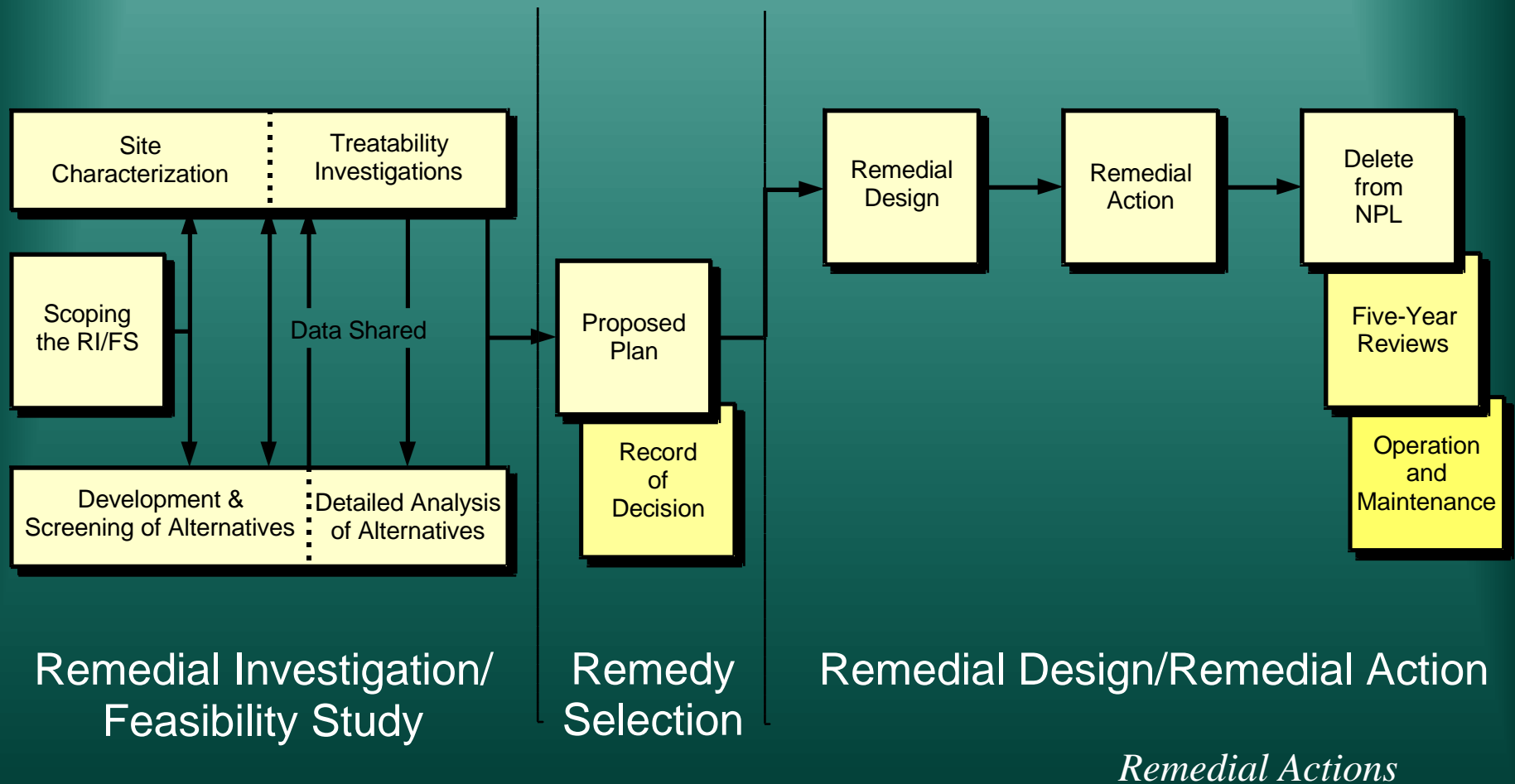


XIII. Remedial Actions and the ARARs Process

Remedial Actions



Remedial Action Process



Purpose of RI/FS Process

- Used to characterize extent, nature, risk, & cleanup alternatives of hazardous substance releases
- Leads to informed risk management decision regarding cleanup

Scoping/Planning RI/FS

- Review existing information
- Establish remedial objectives
- Determine remedial options
- Assess need for treatability studies
- Identify preliminary ARARs
- Prepare RI/FS work plan & support documents

Remedial Actions

Scoping the RI/FS: Documents

Required:

- RI/FS work plan (RI/FS WP)
- Sampling and analysis plan (SAP)
- Health and safety plan (HASP)
- Community relations plan (CRP)

Recommended:

- Data management plan (DMP)

Remedial Actions

ARARs Support for the Scoping Documents

- RI/FS WP: may include preliminary chemical- & location-ARARs for known COCs
- SAP: compare detection limits to chemical-specific ARARs to ensure limits are low enough
- HASP: includes OSHA requirements, which are not ARARs
- CRP & DMP: none

Remedial Actions

Conducting the RI/FS: Site Characterization

- Investigate physical characteristics
- Define sources of contamination
- Determine nature/extent of contamination
- Analyze contaminant fate & transport

Conducting the RI/FS: Site Characterization (cont'd)

- Using characterization data, conduct baseline risk assessment
- Develop preliminary remedial goals (PRGs), based on the risk assessment data and chemical-specific ARARs
- Develop documentation of chemical- and location-specific ARARs

The RI Report

- No specific format required by EPA
- FFA or IAG may specify format and/or information to be included
- Documents all findings of site characterization and baseline risk assessment
- Includes preliminary listing of chemical- and location-specific ARARs

Remedial Actions

Information Required for Developing Chemical-Specific ARARs

- Environmental media that will be undergoing remediation
- COCs in each medium, and maximum levels detected
- Type of waste:
 - ➡ RCRA-characteristic or -listed?
 - ➡ PCBs?
 - ➡ Radioactive waste?

Remedial Actions

Information Needed for Developing Location-Specific ARARs

- Locational characteristics
- Fault displaced in Holocene time?
- Wetlands or floodplains?
- Salt-dome formations, underground mines, or caves?
- Historic sites or projects?
- Archaeological findings?
- Wilderness areas, designated wild or scenic rivers?
- Critical habitat, endangered or threatened species?

Remedial Actions

Sources of Sensitive Resources Information

- Site descriptions in published documents
- NEPA (“sensitive resource”) survey results
- RI investigative team reports
- Personal knowledge
 - Environmental monitoring staff
 - Site visit
 - Scientific community

Conducting the RI/FS: Development & Screening of Alternatives

- Develop remedial action objectives (RAOs) based on PRGs developed in the RI
- Identify potential treatment technologies, & containment/disposal requirements for untreated waste and residuals
- Screen technologies
- Identify action-specific ARARs
- Assemble technologies into alternatives
- Screen alternatives as necessary

Remedial Actions

Process for Developing Action-Specific ARARs

- Identify all remedial alternatives that may be considered for the site
- Identify scope of remedial action
- Determine types of unit on the site
 - Landfill/surface impoundment/waste pile/UST?
 - RCRA-permitted? Subtitle C or D?

Remedial Actions

Process for Developing Action-Specific ARARs (cont'd)

- Establish scenarios for each alternative
 - Preconstruction activities (grubbing, backfilling, vegetation removal, roadbuilding)
 - Excavation/removal of soil
 - Impact on adjacent surface water bodies
 - Treatment options
 - Disposal of treated media and/or residuals
 - Closure options

Remedial Actions

Suggested Process for Documenting Action-Specific ARARs

- Develop text/table of ARARs common to *all* alternatives
- Examples:
 - ➡ Fugitive dust emissions
 - ➡ Storm water runoff
- Develop text/tables of additional ARARs *specific* to each alternative

Remedial Actions

Conducting the RI/FS: Treatability Studies

- Remedial alternative subjected to bench- and/or pilot-scale testing to assess effectiveness under actual conditions
- Results summarized in TS Report to support the detailed analysis of alternatives
- Treatability studies must comply with ARARs “to the extent practicable”

Conducting the RI/FS: Detailed Analysis of Alternatives

- Analyze each alternative against nine evaluation criteria
- Compare alternatives against each other
- Using RI and treatability studies findings, determine which alternatives provide greatest benefits while maximizing use of available resources, including funding

Remedial Alternatives Selection Criteria (CERCLA Sect. 121)

- Threshold criteria
- Primary balancing criteria
- Modifying criteria

Threshold Criteria

- Overall protection of human health and the environment
- Compliance with ARARs

Remedial Actions

Primary Balancing Criteria

- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume of waste through treatment
- Short-term effectiveness
- Implementability
- Cost

Remedial Actions

Modifying Criteria

- State acceptance
- Community acceptance

Remedial Actions

Feasibility Study ARARs Support

- Update/revise RI chemical- and location-specific ARARs
- Develop action-specific ARARs for all alternatives
- Identify whether each ARAR is *applicable or relevant and appropriate*
- Address and justify any ARAR waivers needed
- Negotiate any ARAR issues with regulators

Remedial Actions

The FS Report

- No specific format required by EPA
- FFA or IAG may specify format and/or information to be included
- Summarizes findings of detailed analysis of alternatives
- No selection yet of preferred alternative, but provides basis for remedy selection in the proposed plan and ROD

Remedial Actions

ARARs Documentation in the FS Report

- Integrate major ARARs for each alternative into description of alternatives in *Detailed Analysis* chapter
- Discuss each alternative's ability to comply with identified ARARs in comparative analysis section of *Detailed Analysis* chapter
- Discuss in this section, also, any needed waivers and their justification
- Include, in an appendix, text and tables summarizing all ARARs for all alternatives

Remedial Actions

Proposed Plan

- Purpose - selects preferred alternative & solicits public involvement & acceptance
- Format - fact sheet or brief report
- Outlines:
 - ▣ Nature/extent of contamination
 - ▣ Alternatives evaluated
 - ▣ Preferred approach

Remedial Actions

ARARs Documentation in Proposed Plan

- Integrate major ARARs for each alternative into alternatives description in *Summary of Alternatives*
- Discuss preferred alternative's ability to comply with identified ARARs in *Evaluation of Preferred Alternative*
- List here, also, any needed waivers & justification
- Include detailed listing of ARARs for preferred alternative, summary listing of ARARs for all alternatives
- State in Proposed Plan whether LDRs do or don't apply to preferred alternative

Remedial Actions

ARARs Support for Proposed Plan Stage

- Negotiate and reach concurrence on ARARs before they are included in Proposed Plan or ROD
- Dispute resolution for unresolved issues

Record of Decision

- Purpose - selects remedy and sets bounds for RD and RA
- Format - brief and highly structured
- ARARs *frozen* when ROD is signed
- Remedial action must start within 15 months of signed ROD

Types of RODs

- No Action
- Interim Action
- Contingent Action
- Final Action

Basic Elements of ROD

- *Declaration*
- *Decision Summary*
- *Responsiveness Summary*

Remedial Actions

ROD Declaration

- Formal statement signed by EPA that identifies selected remedy
- Includes a *Statutory Determinations* section stating that the selected remedy complies with ARARs or states that a waiver is justified and is cost-effective

ROD *Decision Summary*

- Presents overview of site problems, remedial alternatives, and analysis of alternatives
- Explains rationale for remedy selection
- *Statutory Determinations* section explains how selected remedy satisfies statutory requirements
 - Lists major ARARs/TBCs
 - Discusses compliance with ARARs
 - Discusses any waivers & justification

Remedial Actions

ROD Responsiveness Summary

- Provides decision-makers with information about community preferences
- Demonstrates to public how their comments were taken into account

Remedial Design and Construction Phase

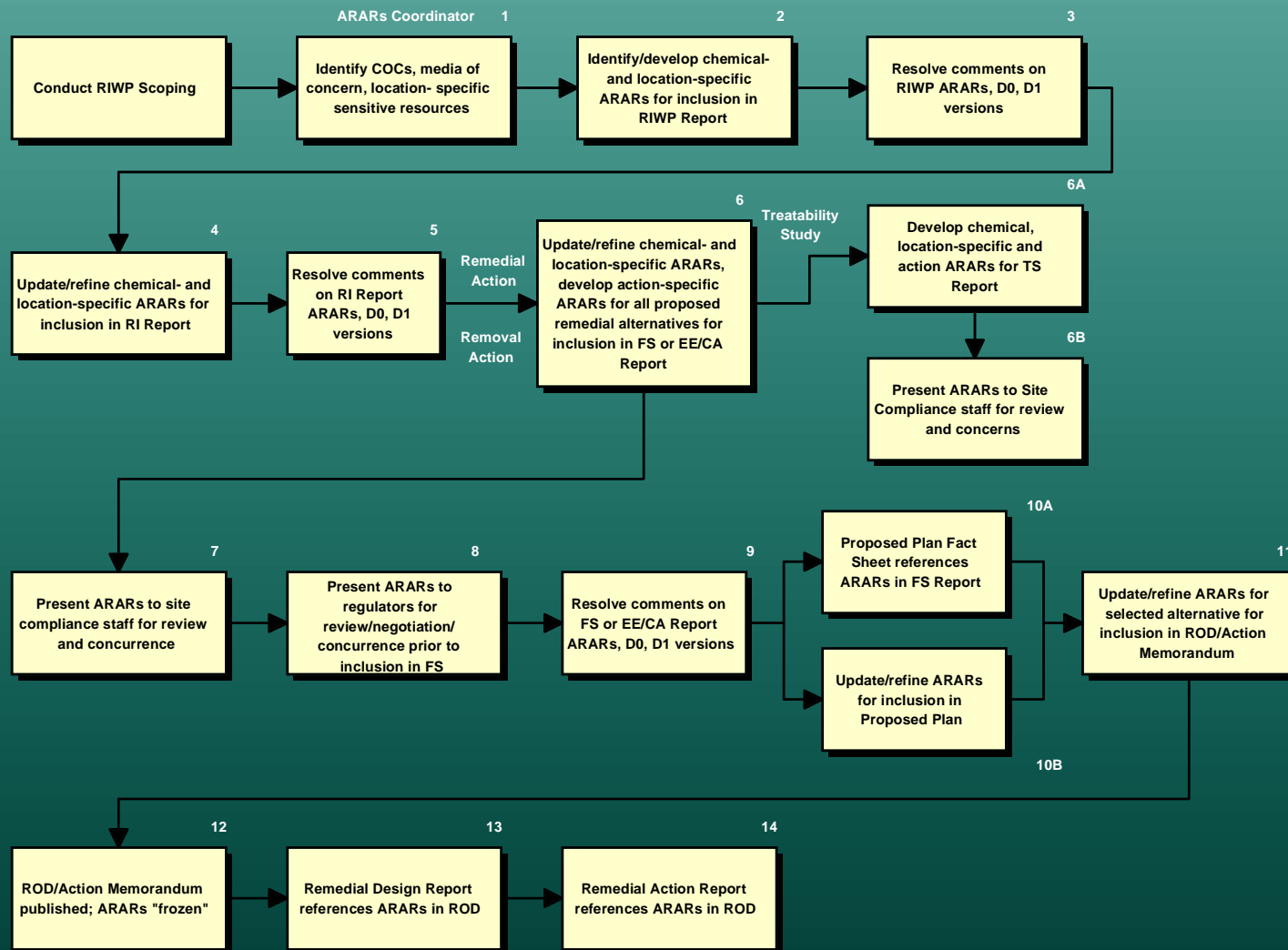
- Purpose - develop remedial design/remedial action (RD/RA) Work Plan and implement remedial action
- Design/action *must* meet ARARs *as listed in signed ROD*
- Any documents produced should reference or re-list the ARARs in ROD

Remedial Design and Construction Phase

- Identify additional ARARs based upon design specification/changes, if appropriate
- Verify protectiveness of remedy if significant new ARARs are promulgated or identified
- Review ARARs if remedial action is significantly different from ROD
- Any changes to preferred alternative and/or ARARs post-ROD must be specifically documented & approved by all stakeholders

Remedial Actions

ORR ARARs Process



Remedial Actions

Summary of ARARs Process

Development of ARARs is an iterative, negotiated process, beginning with a large realm of potential ARARs found in the RI Workplan, with revisions, additions, and deletions occurring as the remedial process progresses, until the ARARs are finalized as the ROD is signed

Key Points to Remember

- RI lists chemical- and location-specific ARARs
- FS updates these & adds action- specific ARARs
- Identification of ARARs is an iterative, negotiable process
- ARARs are “frozen” when ROD is signed
- Remedial actions must comply with all ARARs that are not waived

Remedial Actions